1:Stanford U. S-4, 5 1956 AF15 East China
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402 Machinery produced in Shanghai has been used
433 in many construction projects elsewhere, including the Yümen oil field in Kansu, the new automobile manufacturing plant in Ch'ang-ch'un, and other factories in Manchuria. Shipbuilding, another branch of heavy-machinery manufacturing, is also highly developed in Shanghai.

IV. SURVEY OF SELECTED INDUSTRIES IN EAST CHINA

The above general review may be further supplemented by a brief discussion of some selected industries.

A. Coal

316 There are relatively few large coal
433 mines in East China. Among the most important are Huai-nan in Anhwei, Tzu-po and Tsao-chuang in Shantung, and Chia-wang in Kiangsu. Total coal production in East China may be roughly estimated at 5.3 million tons in 1949, which rose to 11.1 million tons in 1953.[10] Twenty per cent of the region's total

10. Estimated from the following sources: Hsin-hua Yüeh-pao [New China Monthly], Vol. I No. 2, Dec. 15 1949, p. 410; People's Daily, Peking, No. 16, 1952; New China News Agency Peking Dec. 29 1953 and Jan. 11 1954.

1;Stanford U, S-4, 5 1956 AF15 East China
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316 433 production was derived from Huai-nan; Tzu-po and other mines in Shantung probably contributed about 75 per cent. On the other hand, total coal consumption by the electric utility and industrial plants in Shanghai alone amounted to no less than 7.9 million tons in 1953, while for the region as a whole the corresponding figure would be about 11 million tons.[11] Obviously, such consumption requirements, which did not as yet include demand for railway and bunker fuel as well as household consumption, could not be met out of the region's own coal production.

The Huai-nan coal mine, as mentioned earlier, is one of the few large construction projects earmarked under the first Five-Year Plan in East China. After the adoption of new mechanized production methods allegedly suggested by Soviet experts, the Communists reported a tenfold increase in production in 1952 over the corresponding figure in 1949.[12] Sinking of a new pair of coal shafts was started in March 1954, and construction was started on two additional pairs of vertical

11. Estimated from: Wen-hui Daily, Hong Kong, Aug. 26, 1953; New China News Agency, Peking, Jan. 11, 1954.

12. Kung-jen Jih-pao [Workers' Daily], Peking, Nov. 15, 1952.

316 433 shafts in the latter part of the same year. The shafts are scheduled for completion in 1957.[13] Capital investment was said to have been stepped up during 1955 when total annual investment was to equal the entire amount invested in 1951-1954. The reconstruction of four pits was said to have been completed in April 1955, raising the mine's output by 17 per cent.[14] The same report also mentioned the construction of more new shafts than the number mentioned in the report of the preceding year. Total production at Huai-nan, according to the Five-Year Plan, will reach about 6.85 million tons in 1957, which, if accomplished, will make it one of the largest mines in the country outside Manchuria.[15]

B. Electric Power

377 Since the establishment of the Communist regime there has not been any report on the construction of large thermal power plants in East China. According to a comparatively complete report in 1948, there were 23 electric utility plants in this area, ranging

13. New China News Agency, Hopei, March 16, 1954.

14. Survey of China Mainland Press, Hong Kong, April 15, 1955, No. 1,028, p. 30.

15. Ta-kung Daily, Tientsin, July 30, 1955.

[135] China has significant deposits
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of tin and produced in the 1930's between 3 and 4 per cent of the world's tin ore. It is mined in the southwest tableland of Yünnan and Kwangsi, and in the hills which form the divide between the Hsi and Hsiang River basins (in Kwangsi and Hunan), but no tin was smelted anywhere in China until 1932, when a small plant was established at the largest Chinese mine in Yünnan. The ore, and the small amount of smelted tin were almost entirely exported. China before 1937 was the leading world producer of both tungsten and antimony, and Shanghai was able to fill its own small needs for these alloys entirely from domestic sources. Both ores were mined predominantly in the basins of the Hsiang and Yüan Rivers in Hunan, and over 90 per cent of the total production of both ores was exported, nearly all of it through Shanghai.

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Hides for the leather industry in Shanghai, and for export, came to the city, in order of importance, from Manchuria by sea, Tientsin (which acted as the main collecting center for hides from the grazing lands of northwest China) by sea, Shantung (Tsingtao and Tsinan) by both sea and rail, and from Hankow (collecting center for the hides of central China) and Szechuan via the Yangtze. Hides from Kiangsu and Chekiang were considered greatly inferior as well as being very limited in quantity in this animal-poor area of intensive hand agriculture, and accounted for less than 3 per cent of Shanghai's total supply.[29] Rubber was of course entirely imported.

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Shanghai's wood-working, furniture, and paper industries were almost entirely dependent on imported wood from Canada, the United States, and Scandinavia. The delta area produces no wood at all, and the nearest commercially usable stands are in the hills along the Chientang River south and west of Hangchow, but they are small and of poor quality. About one-tenth of the quantity of foreign imports came in by junk from south China, particularly from Foochow, the lumber center of the China coast by virtue of the heavily wooded slopes of the Wu Yi and Ta Yü ranges, too steep for agriculture and not crossed by any important transport routes.[30]

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The two leading chemical industries, soap and matches, provide in the sources of their raw materials an illustration of Shanghai's position as a manufacturing center in an otherwise pre-industrial economy. There were about fifty soap factories in Shanghai in the

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439 316 Consular and Customs reports from Shanghai during the early decades of the modern city show that it depended almost entirely on overseas imports of coal. There was a large movement in ballast from England to Shanghai from the opening of the port to foreign trade in 1843 through the period of the 1860's, when foreign merchants had difficulty finding a market for foreign goods in return for China's tea and silk.[43] It was consumed largely by the coastal, river, and ocean vessels fueling at Shanghai.[44] This relatively cheap ballast coal from England was however gradually replaced after 1870 by even cheaper coal from Nagasaki in Japan and from the large Chinese government-operated Keelung mines (subsequently taken over by the Japanese in their conquest of Formosa in 1895) at the northern tip of Formosa, opened in 1875. Both of these new sources were on tidewater and coal from both could move to Shanghai as part of the growing volume of east Asian maritime trade.

316 438 The first large-scale coal mine in China was opened at Kaiping, Hopeh, in 1878,* (map 9), and the first shipment from Kaiping to Shanghai arrived in 1881, but this coal was unable to compete with Japanese imports at Shanghai until after the turn of the century. By 1930, the Kaiping mine accounted for 23 per cent of China's annual coal production.[45] Kaiping was connected by rail to Tangku and Tientsin in 1888 (the first permanent railway in China), and to Shanhaikuan, via Chingwantao, in 1894. At Chingwantao, 79 miles by rail north of Kaiping, a seawall and wharves were built between 1899 and 1902 to permit shipment of Kaiping coal from this port, where there was no bar as at Tangku.[46] [503]

438 439 This facilitation of transport, and the relatively short rail-haul from the mines to Chingwantao, were undoubtedly factors in the increased ability of Kaiping coal to compete in the Shanghai market after 1902. In the 1890's, with the assistance of French capital, another new supply of coal appeared on the east Asia market, from Indo-China. The mines, located on tidewater near Haiphong (map

* This was the Kaiping Mining Bureau, organized at the instigation of Li Hung-chang in 1878, and later (1912), after a period of British control (1901–1912), reorganized as the Kailan Mining Administration, a joint Sino-British undertaking and one of the pioneer modern industrial enterprises in China. For a valuable account of its development, see Ellsworth Carlson, *The Kailan Mines* (1949).

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9), could compete in Shanghai with Japanese, Formosan, or north China coal.

The table below estimates the relative rank of major sources for Shanghai's coal in the 1930's, by percentages of total tonnage of coal delivered in Shanghai in each year from all the sources listed.[47]

Source	*1931*	*1932*	*1933*	*1934*	*1935*	*1936*	*Average 1931–36*
Kaiping (Hopeh)	37	46	37	36	37	36	37.5
Tzuchuan-Poshan (Shantung)	7	6	11	17	19	22	14.0
Japan (ex-Nagasaki)	18	16	15	8	5	3	10.8
Fushun (Manchuria)	19	13	13	6	3	1	9.5
Anhwei (mines on Yangtze)	—	—	9	10	14	23	9.2
Chunghsing (Shantung)	8	8	6	12	12	8	9.1
Haiphong (Indo-China)	4	6	6	5	5	5	5.3
Shansi (mine(s) unspecified)	7	5	3	6	5	2	4.6
	100	100	100	100	100	100	100.0

Mainland places mentioned in the foregoing table will be found in map 9. The Poshan and Tzuchuan mines were located in the major coal field of Shantung. Both mines began to produce coal on a large scale in the late 1920's, after they were connected by rail to Tsingtao, approximately 175 miles away. Tzuchuan and Poshan coal moved to Shanghai largely by rail to Tsingtao and thence by sea, although there was some rail shipment via Nanking and thence to Shanghai via the Yangtze. Fushun was linked by rail with the port of Yingkow (Newchwang), 120 miles to the south at the mouth of the Liao River, as well as by limited water transport on the river, and by rail with Dairen, Manchuria's leading port, 210 miles to the south. The mines in Anhwei were located along the Yangtze, but production was not begun on a large scale until after 1932. The Anhwei coal deposits are relatively small and their exploitation is more expensive than in the larger Chinese mines, such as at Kaiping. Only their location along the Yangtze made their exploitation profitable as a source for Shanghai's coal supply. Coal from Chunghsing in Shantung moved 120 miles by rail to Haichow, and thence to Shanghai by sea. Shansi coal entering Shanghai came principally from the mines at Tzu-

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chou, and moved to both Tientsin and Haichow by rail, whence it traveled to Shanghai by sea.

The figures for coal imports from Japan and Manchuria in 1931, 1932, and 1933 listed in the foregoing table owe their size primarily to Japanese dumping of coal on the Shanghai market in these years at a price which was often less than two-thirds of the domestic price of coal in Japan. The table shows that while this dumping did not greatly affect sales of Kaiping coal in Shanghai, it did cut into the Shanghai market for Shantung coal in particular (Tzuchuan, Poshan, and Chunghsing). This may suggest, in the absence of complete available price figures, that Kaiping coal was relatively cheap in Shanghai and that Shantung coal was relatively expensive. A reason for this difference may be found in the long rail-haul necessary for coal moving from Shantung mines to Shanghai (120 miles from Chunghsing and 175 miles from Tzuchuan-Poshan), compared with the shorter rail haul of 79 miles for Kaiping coal to Chingwantao.

Railway figures show that coal shipments arriving in Shanghai by rail in the years 1931, 1932, and 1933 averaged less than one-quarter of the railway coal shipments recorded for 1930, 1934, 1935, and 1936.[48] Apparently direct rail haulage of coal from Shantung (or from other sources) to Shanghai was not profitable in the face of Japanese dumping in Shanghai. Figures of the Maritime Customs for these years show no significant falling off in seaborne cargoes of coal arriving in Shanghai between 1931 and 1933, and in fact record a slightly higher average for these three years than for the years immediately preceding and following them, readily explainable in terms of larger imports of the unnaturally cheap Japanese coal for inland distribution as well as for consumption in Shanghai. In any case, Kaiping coal apparently had no difficulty in maintaining its position on the Shanghai market despite Japanese dumping.

Shanghai drew most of its coal from sources closely oriented to water transport. Coal deposits are widely distributed over large areas of north and central China. While Shanghai received its largest supply from Kaiping mines near the coast, and a relatively constant supply from the mines on tidewater at Haiphong, it drew

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inland coal only from Fushun (on a navigable tributary of the Liao, and normally the cheapest pit-head coal in East Asia due to easy extraction from huge open-pit mines), Anhwei (deposits along the Yangtze), Shansi (China's major coal reserve), and Shantung (the nearest large coal deposits to Shanghai). The Chinghsing mines in Hopeh could not depend for transport on their largely unnavigable river connections with Tientsin, 190 miles away by rail.

The accompanying table lists the average annual production (in millions of tons) of the major coal-producing provinces of China in the early 1930's.[49]

Province	*Production*
Hopeh	7.7
Shantung	3.5
Shansi	2.7
Honan	2.1
Szechuan	.9
Hunan	.6
Anhwei	.6

Hopeh, with its Kaiping mines 79 miles by rail from the port of Chingwantao, supplied the largest share of Shanghai's coal for the period 1931–1936 (37.6 per cent). Shantung, immediately north of Kiangsu and the nearest large coal producer to Shanghai, but with limited water transport, supplied an average of only 23.1 per cent of Shanghai's coal during the same period. Inland Honan, Szechuan, and Hunan do not figure as sources of Shanghai coal. Anhwei, also without a seacoast, but with mines along the Yangtze, accounted for 23 per cent of Shanghai's coal supply by 1936. Landlocked Shansi, China's third producer of coal accounted for less than five per cent of Shanghai's coal supply for the same period. Overseas coal imports (Japan, Manchuria, and Indo-China) accounted for 25.6 per cent of Shanghai's coal supply for the period 1931–1936, or more than any Chinese province except Hopeh (see table above on p. 185).

Ting estimates that for China as a whole in the period of the 1930's domestic coal was moved 70 per cent (by weight) by rail, and